Product Description Document
Collaborative Aviation
Weather Statement (CAWS)

Part 1 – Mission Connection

1. Product Description:
The Collaborative Aviation Weather Statement (CAWS) is a product (weather service) collaborated by National Weather Service (NWS) meteorologists, airline meteorologists, and other airline and Federal Aviation Administration (FAA) personnel. The CAWS focuses on specific, convective forecasts impacting the Core 29 airports and high traffic en-route corridors. The focus is event-driven, supporting the ability to more effectively initiate, adjust, or terminate planned or active Traffic Management Initiatives (TMI) to balance traffic demand in the constraint locations.

The FAA, pursuant to Title 49 United States Code Section 44720, established requirements for this weather information and service which is necessary for the safe and efficient conduct of operations in the National Airspace System (NAS).

2. Purpose/Intended Use:
The CAWS is a first step towards the FAA operational use of probabilistic weather information. Operational Bridging (OB) is a set of weather forecasting processes, communication tools, and engagement protocols between meteorologists and Air Traffic Management (ATM) decision makers. The intent is to accelerate the transition of aviation weather forecasts from probabilistic (e.g., 50% probability, 70% probability, etc.) to operationally relevant (e.g., event-driven) and enable more timely ATM decisions based on improved precision (e.g., location, duration, magnitude of weather) and NAS predictability. This new guidance product, the CAWS, will update Traffic Flow Management (TFM) planners on adverse weather that crosses thresholds determined to be critical to ATM decisions. CAWS will provide ATM decision makers (e.g., Air Traffic Control System Command Center (ATCSCC), Air Route Traffic Control Center (ARTCC), Terminal Radar Approach Control (TRACON) TFM, etc.) with timely, highly confident, and highly relevant information about weather events likely to constrain NAS operations, including forecasts that a weather event will not materialize as previously forecast, or an active event will end sooner than expected.

3. Audience/Users:
The CAWS will support the identification of NAS constraints due to weather that impacts strategic NAS planning. The CAWS initially focuses on convective weather across the CONUS, since convection has historically caused the greatest number of NAS constraints. Describing weather trends and evolving weather events improves the predictability of weather impacts. This improvement will allow ATM decision makers to more effectively initiate, adjust, or terminate planned or active TFM initiatives, resulting in more efficient use of available airspace. The CAWS represents the evolution of the Collaborative Convective Forecast Product (CCFP). Like the CCFP, the CAWS is a collaborative effort between National Weather Service (NWS) at the Aviation Weather Center (AWC), meteorologists at the ATCSCC and the ARTCC Center

Weather Service Unit (CWSU), and airline meteorologists. The CAWS replaces the collaborative component of the manual CCFP. The manual CCFP will be replaced by an objectively generated product. The CAWS will be generated, revised, corrected, and cancelled as ATM defined weather conditions (thresholds) of relevance warrant. The FAA and the airline industry will use CAWS to plan, manage, and execute operations in the NAS.

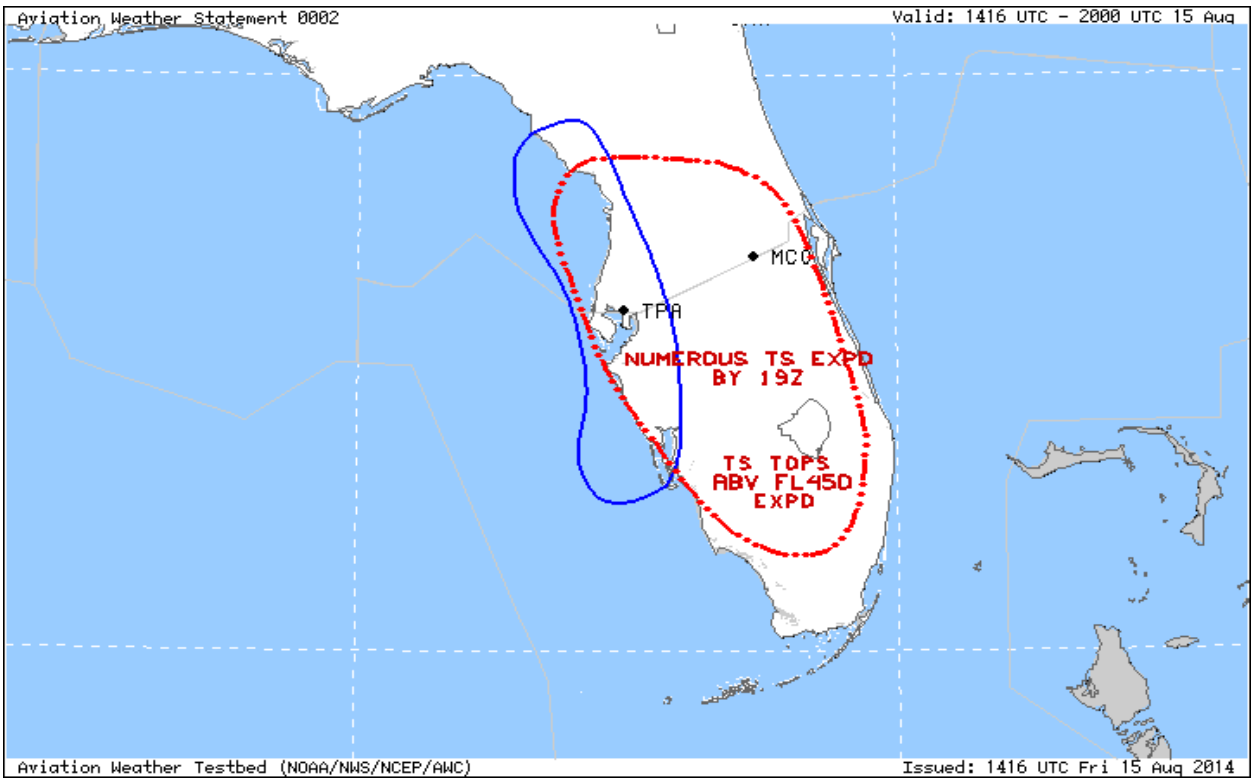
4. Presentation Format:
An example of the CAWS guidance in ASCII coded text product and as a graphic are shown below:

Collaborative Aviation Weather Statement 001
NWS Aviation Weather Center Kansas City MO
1345 UTC Wed 03 Aug 2014
Weather: Thunderstorms
Valid: 1600-1900Z
ARTCCs affected: ZJX, ZMA
Terminals affected: MCO, TPA

SUMMARY: Thunderstorms along the W coast of FL are expected to move inland and become numerous throughout the central FL peninsula during the early afternoon hours.

DISCUSSION: Scattered thunderstorms primarily overwater along the W coast of FL are expected to move inland and increase to numerous across the center of the FL peninsula through the early afternoon, more quickly and with greater coverage than shown by CCFP. Thunderstorm tops will reach FL450. Terminal impact at TPA probable after 1600Z but ending no later than 1730Z. Terminal impact at MCO probable after 1730Z. Expect another CAWS covering FL thunderstorms to be issued after 1600Z.

CAWS Graphic:



5. How will a CAWS be Disseminated?

- Posted on the Aviation Weather Center website: *https://www.aviationweather.gov/caws*
- NWS Telecommunications Gateway: WMO header for the text product: FAUS11 KKCI and the AWIPS ID is AWSTS. The png graphic WMO ID is PMNC00 KKCI.
- The FAA Air Traffic Control System Command Center will issue an advisory when CAWS is issued.

6. Feedback Method:

2015 is an assessment period to refine CAWS requirements when input will be collected as part of a comprehensive suitability assessment aimed at improving the operational value of OB and CAWS. The FAA's Aviation Weather Division will lead the evaluation, focusing on usability, effectiveness, and areas of potential improvement for OB and the CAWS. FAA engineering research psychologists will manage the collection of feedback which will be obtained from the joint government and industry Collaborative Decision Making (CDM) community through the National Traffic Management Log (NTML), customer comments, an FAA hosted online survey, onsite interviews, and questionnaires.

Public comments will be collected [insert date range here] ~~will~~ typically ~~be collected~~ via the survey below:

www.nws.noaa.gov/survey/nws-survey.php?code=CAWS

And via comments provided to the http://www.aviationweather.gov/ webmaster. Opportunities for face-to-face responses will occasionally occur in the context of media workshops, public outreach events, etc.

For further information please contact:
Kevin Stone
National Weather Service
Aviation Services Branch
1325 East-West Highway
SSMC-2 RM 13314
Silver Spring, Maryland 20910
Phone 301.427.9363
Email: Kevin.Stone@noaa.gov

Part 2 – Technical Description

1. Format and Science Basis:
In recent years, science and technology advances have introduced new high-resolution convective forecasts, enabling the meteorology community to provide more detailed forecast information in support of TFM decisions. In addition, ensemble weather models now are providing reliable probabilistic forecasts of convection. However, these multiple products often provide differing forecasts and could make it difficult at times for TFM planners to agree on a plan for the NAS. To address these issues, the CDM Stakeholders Group (CSG) tasked the Weather Evaluation Team (WET) to explore concepts that:

• Reconcile the variety of convective forecasts available to ATM decision makers (current and future),
• Account for the evolving role of the meteorologist in forecast production, and move towards using the Human Over the Loop (HOTL) model, and
• Address the use of probabilistic weather forecast information in support of strategic TFM planning.

The CAWS is the vehicle through which unscheduled, event-driven updates to impacting forecast aviation weather will be communicated in a standard process on a national basis. It will be issued based on specific meteorological thresholds identified as being key for a specific area (e.g., Core 29 airports, Sector, Metroplex, etc.). Any person identified as a collaborator may initiate the process, and once published will supersede any other scheduled product used by TFM. This will enable proactive initiation or cancellation of TMI to balance traffic demand against greater predictability in constraint locations, magnitudes, and durations.

The expected benefits to the aviation community should be a reduction in fuel cost and expenses associated with flight delays, cancellations, and diversions due to timely adjustments to the forecast weather and more efficient TMI management. These adjustments may include the ability to manage TMIs to account for previously unforeseen weather that is now expected to develop, that is not expected to develop, or not expected to develop to the extent previously forecast.

The CAWS will be generated 24/7, 365 days/year, disseminated on an unscheduled basis, and collaborated among meteorologists from all stakeholder groups. Initially it will address convective weather likely to cause constraints in the NAS.
The CAWS may be issued when one or more of the following weather criteria are met:

• Thunderstorm activity affecting an area of concern is considered to be probable (60-80% probability with high confidence) or expected (>80% probability with high confidence)
• Thunderstorm activity that was anticipated to impact an area of concern is now considered to be not probable (60-80% probability, high confidence) or not expected (>80% probability, high confidence)
• There are differing (probability of occurrence, timing, coverage, severity) forecasts of thunderstorm activity affecting an area of concern, and the conflicts need to be resolved
• Cessation of thunderstorm activity impacting an area of concern is probable (60-80% probability, high confidence) or expected (>80% probability, high confidence) one or more hours earlier than forecast.

In addition, CAWS may be issued at the request of TFM decision-makers to support their daily strategic planning when more detail about an area of concern is needed than is provided by the schedule-based product (e.g., CCFP).

2. Training:
No training is required to use the product.

3. Availability:
The experimental CAWS guidance will be available 7 days a week during the period from March 3, 2015, through October 31, 2015. This product is event driven.

The CAWS will be available at: https://www.aviationweather.gov/caws

The WMO header is FAUS11 KKCI AWIPS ID: AWSTS for the Text Product and PMNC00 KKCI for the PNG graphic.